

We Claim:

- 1 1. Circuit arrangement with semiconductor elements arranged in chips
2 comprising:
 - 3 - at least one metallic body for electrical contacting of the semiconductor elements
4 and for dissipation of the heat generated in the semiconductor elements, whereby
5 the metallic body or bodies are designed in such a way that the metallic body or
6 bodies simultaneously serve as carriers for the semiconductor elements, and the
7 chips are fastened to the metallic body or bodies, and wherein
 - 8 - the semiconductor elements comprise first semiconductor elements which are
9 switched in parallel,
 - 10 - the body or bodies include a first body to which the chips of the first
11 semiconductor element are fastened,
 - 12 - at least a first metallic bus body is provided as a terminal for a control module,
 - 13 - the control connections of the first semiconductor elements are electrically
14 connected to the first bus body with the aid of bond wires,
 - 15 - the semiconductor elements include second semiconductor elements switched
16 in parallel,
 - 17 - the body or bodies include a second body to which the chips of the second
18 semiconductor element are fastened and which is arranged next to the first body,
 - 19 - a second metallic bus body is provided as a terminal for the control module, and
 - 20 - the control terminals of the second semiconductor elements are connected to the
21 second bus body with the aid of bond wires.
- 1 2. Circuit arrangement in accordance with Claim 1, wherein
 - 2 - the semiconductor elements are electrically connected to the body or bodies so that
3 the chips of the semiconductor elements are fastened directly without a chip
4 housing to the body or bodies.

- 1 3. Circuit arrangement in accordance with Claim 1, wherein
2 - the chips of the semiconductor elements are connected to the associated body in
3 each case by conductive adhesive or by solder.
- 1 4. Circuit arrangement in accordance with Claim 1, wherein
2 - to dissipate the heat generated in the semiconductor elements the body or bodies is
3 or are arranged on a cooling device electrically isolated from the body or bodies.
- 1 5. Circuit arrangement in accordance with Claim 1, wherein
2 - a third metallic bus body is provided as a ground connection, and
3 - the terminals of the semiconductor elements are connected to the third bus body
4 with the aid of bond wires.
- 1 6. Circuit arrangement in accordance with Claim 1, wherein
2 - the body or bodies and/or the first bus body and/or the second bus body and/or the
3 third bus body are substantially made of copper.

- 1 7. Circuit arrangement comprising:
- 2 - a plurality of semiconductor elements,
- 3 - at least one metallic body for electrical contacting of the semiconductor elements
- 4 and for dissipation of the heat generated in the semiconductor elements, whereby
- 5 the metallic body or bodies are designed in such a way that the metallic body or
- 6 bodies simultaneously serve as carriers for the semiconductor elements, and the
- 7 semiconductor elements are fastened to the metallic body or bodies,
- 8 - first semiconductor elements of the semiconductor elements which are switched in
- 9 parallel,
- 10 - a first body of the at least one metallic body to which the first semiconductor
- 11 elements are fastened,
- 12 - at least a first metallic bus body as a terminal for a control module,
- 13 - control connections of the first semiconductor elements which are electrically
- 14 connected to the first bus body by means of bond wires,
- 15 - second semiconductor elements of the semiconductor elements which are switched
- 16 in parallel,
- 17 - a second body of the at least one metallic body to which the second semiconductor
- 18 elements are fastened and which is arranged next to the first body,
- 19 - a second metallic bus body as a terminal for the control module, and
- 20 - control terminals of the second semiconductor elements which are connected to the
- 21 second bus body by means of bond wires.
- 1 8. Circuit arrangement in accordance with Claim 7, wherein
- 2 - the semiconductor elements are electrically connected to the body or bodies such
- 3 that the semiconductor elements are fastened directly without housing to the body
- 4 or bodies.
- 1 9. Circuit arrangement in accordance with Claim 7, wherein
- 2 - the semiconductor elements are connected to the associated body in each case by
- 3 conductive adhesive or by solder.

- 1 10. Circuit arrangement in accordance with Claim 7, wherein
2 - to dissipate the heat generated in the semiconductor elements, the body or bodies is
3 or are arranged on a cooling device electrically isolated from the body or bodies.
- 1 11. Circuit arrangement in accordance with Claim 7, wherein
2 - a third metallic bus body is provided as a ground connection, and
3 - at least a terminal of the semiconductor elements is connected to the third bus body
4 with the aid of a bond wire.
- 1 12. Circuit arrangement in accordance with Claim 7, wherein
2 - the body or bodies and/or the first bus body and/or the second bus body and/or the
3 third bus body are substantially made of copper.

- 1 13. Method of manufacturing a circuit arrangement comprising the steps of:
- 2 - providing a plurality of semiconductor elements,
- 3 - providing a cooling body;
- 4 - arranging at least a first metallic body on said cooling body to which first
- 5 semiconductor elements of said semiconductor elements are fastened,
- 6 - arranging at least a first metallic bus body on said cooling body as a terminal for a
- 7 control module,
- 8 - coupling control connections of the first semiconductor elements to the first bus
- 9 body by means of bond wires,
- 10 - arranging at least a second metallic body next to the first body to which second
- 11 semiconductor elements of said semiconductor elements are fastened,
- 12 - arranging a second metallic bus body as a terminal for the control module, and
- 13 - connecting control terminals of the second semiconductor elements to the second
- 14 bus body by means of bond wires.
- 1 14. The method as in claim 13, further comprising the step of providing an
- 2 insulating layer between said cooling body and said metallic bodys.
- 1 15. The method as in claim 13, further comprising the step of connecting the
- 2 semiconductor elements electrically to the body or bodies such that the
- 3 semiconductor elements are fastened directly without housing to the body or
- 4 bodies.
- 1 16. The method as in claim 13, further comprising the step of connecting the
- 2 semiconductor elements to the associated body in each case by conductive adhesive
- 3 or by solder.

- 1 17. The method as in claim 13, further comprising the steps of:
- 2 - arranging a third metallic bus body as a ground connection on top of one of said
- 3 metallic bodies, and
- 4 - connecting at least a terminal of the semiconductor elements to the third bus body
- 5 with the aid of bond wires.